



Webex System Requirements

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General System Requirements

Cisco Webex Meetings Server (CWMS) is compatible with Cisco UCS servers that meet or exceed the specifications presented in this section.



Important

When you perform an *upgrade* to a major release of CWMS, such as to Release 2.0 or Release 2.5 from Release 1.x, the ESXi hosts (Cisco UCS server) where the Admin virtual machine is located require a minimum of 1.5-TB of free disk space. Refer to the section in this document that describes the different size user systems that begin with the [50-user System, on page 10](#). During an upgrade, there are two sets of virtual machines on your network at the same time; the *original* virtual machines running Release 1.x and the *upgrade* virtual machines to support the new release. For more details, see the "Upgrading the System" section in the CWMS Administration Guide at http://www.cisco.com/en/US/products/ps12732/prod_installation_guides_list.html.

Module	Requirements Notes
Host server and processors	<ul style="list-style-type: none"> • Cisco UCS <i>C-series</i> rack server or equivalent <i>B-series</i> blade server. • AES-NI instruction set support. • 2.4 GHz or faster processor clock speed. <p>Note Third-party hardware is not supported.</p>
Network interfaces The NICs between the ESXi hosts (for the Cisco Webex Meetings Server virtual machines) and the Ethernet switch (not to the external network interface).	<ul style="list-style-type: none"> • Minimum 1 physical NIC for a non-redundant configuration. See the 50-user System, on page 10 section for special requirements where the Internet Reverse Proxy (IRP) and Admin virtual machine are sharing a host. • Redundant configurations must have all NIC interfaces duplicated (<i>teamed</i> or <i>bonded</i>) and connected to an independent switching fabric. • An additional NIC for the VMware management network (optional).
¹ Internal (DAS) Storage for ESXi hosts where internal virtual machines are deployed	<ul style="list-style-type: none"> • Minimum of 4 drives in a RAID-10 or RAID-5 configuration • Minimum of 2.5 TB usable storage for new system deployments or upgrades. • When you upgrade CWMS, the ESXi hosts each require from 300 to 1759 GB free disk space. The requirement depends on the size of your system and the virtual machines. For more information, see Minimum Hardware Requirements, on page 7. • Optional second array for ESXi <p>Note The virtual machines must use thick provisioning for storage.</p>
Internal (DAS) storage for ESXi hosts where IRP virtual machines are deployed	<ul style="list-style-type: none"> • Minimum of 2 drives in a RAID-1 configuration • Minimum of 600-GB usable storage • Can use the same configurations as for the internal virtual machines <p>Note The virtual machines must use thick provisioning for storage.</p>

Module	Requirements Notes
SAN storage	<ul style="list-style-type: none"> • Can be used as a substitute for DAS. (We recommend allocating of the same amount of storage space.) • B-series blade servers have only two hard disk drives. If you are using Cisco UCS B-series blade servers, upgrading requires the use of SAN storage. SAN storage meets the requirement to have 4 hard disk drives in either a RAID 5 or RAID 10 configuration. • Recommended only for deployments where the support staff has experience monitoring and tuning SAN performance. <p>Note You take responsibility for adding storage for new VMware requirements and future growth of the system.</p> <ul style="list-style-type: none"> • Fiber Channel (FC) or Fiber Channel over 10-GB Ethernet (FCoE) only. • Performance requirements are the same as for DAS.
Hypervisor	<p>ESXi versions and vSphere licenses are described in the Minimum Hardware Requirements, on page 7 section.</p> <p>VMware Vsphere is required and the only product supported; other hypervisor products are not supported.</p> <p>One VMware license per processor socket.</p> <p>For more information about vSphere licenses, see Minimum Hardware Requirements.</p> <p>VMware vCenter Server or vCenter Server appliance versions: 6.0, 6.5, 6.7 and 7.0.</p> <p>Coresidency:</p> <ul style="list-style-type: none"> • vCenter can be coresident with CWMS, providing the processor and memory requirements are added to the system requirements. • vCenter coresident configurations are supported only for 50-user and 250-user systems. • Coresidency with Cisco Unified Communications products on the same physical ESXi host is not supported. • Coresidency with non-CWMS virtual machines on the same physical ESXi host is not supported. <p>Advanced VMware vSphere features such as Distributed Resource Scheduler (DRS), Cloning, Fault Tolerance (FT), and vMotion or Storage vMotion are not supported.</p>

Module	Requirements Notes
Email server	<ul style="list-style-type: none"> Fully qualified domain name (FQDN) of the mail server that the system uses to send emails. Port number—default value of the SMTP port number is 25 or 465 (secure SMTP port number). To use a TLS-enabled email server with third-party certificates, you must import the certificates into your system. For more information, See "Managing Certificates" in the administration guide at http://www.cisco.com/en/US/products/ps12732/prod_installation_guides_list.html.
Licenses	<p>MDC licenses—An MDC license is required for each data center in a multi-data center system. A MDC license is not required for a system with a single data center.</p> <p>Host license—Each user that shall host a meeting must have a Host license to start a Webex Web, Webex Audio, Blast Dial meeting, or Personal Conferencing. For more information about Host licenses, see About Host Licenses.</p>

¹ If your organization has expertise in managing a storage area network (SAN), we recommend SAN over direct attached storage (DAS). SANs can be more reliable than local disk arrays.

Cisco Unified Communications Manager Requirements

Cisco Unified Communications Manager (CUCM) supports TLS 1.1 and later; TLS 1.0 is not supported, with one exception. Client connections from Cisco Webex Meetings Server (CWMS) to an SMTP server using TLS 1.0 are supported.

This release supports CUCM 8.6 or 9.0 without TLS/SRTP. For secure teleconferencing, this release supports the following CUCM releases:

- 9.1
- 10.0 and 10.5
- 11.0(1a), 11.5(1)SU1, 11.5(1)SU3, 11.5SU5, 11.5SU6, 11.5SU7, and 11.5SU8.
- 12.0, 12.0SU2, 12.5, 12.5SU2, and 12.5(1)SU1

Cisco Webex Meetings Server Best Practices

The following is a list of best practices that you should refer to when configuring and maintaining your Cisco Webex Meetings Server system:

- Use an uninterruptible power source (UPS) to minimize power interruptions to your virtual machine hosts. Repeated power failures can damage host systems and virtual machines.
- Always put your system into maintenance mode before shutting down a guest operating system.

- For scheduled events and other situations that require a system shutdown, gracefully shut down your virtual machines by shutting down the guest operating system.
- The system is designed to repair itself when necessary and rebooting can interrupt this process. We do not recommend that you reboot your system to fix it. If your system is in an unhealthy state, contact the Cisco TAC. Power off your system only when instructed to do so or during scheduled events such as data center maintenance.
- Configure network redundancy to minimize network failures. Refer to "Adding a High Availability System" in the *Cisco Webex Meetings Server Administration Guide* for more information.
- Using snapshots on your virtual machines can impair system performance in ways that affect user experience even when the system is otherwise lightly loaded.
- If your system is having problems, make sure that you check your VMware vCenter environment to determine if conditions in vCenter or the network are causing the problem.
- Configure high availability to increase the probability that your system can continue to operate if a failure occurs.
- If you have a high-availability system and your secondary system fails, you can repair it by removing the existing secondary system (refer to "Removing a High Availability System" in your *Cisco Webex Meetings Server Administration Guide*) and adding a new secondary system (refer to "Adding a High Availability System" in your *Cisco Webex Meetings Server Administration Guide*). If the primary system on a high-availability system fails, you cannot repair it using this procedure. We recommend that you restore your primary system using the disaster recovery procedure and then add a new secondary system. Until you add a new secondary system your deployment is operating without full redundancy. This procedure helps prevent unplanned outages if any of your secondary virtual machines fails. Refer to "Using the Disaster Recovery Feature" in the *Cisco Webex Meetings Server Administration Guide* for more information.
- Since your system only keeps the latest system backup on the NFS and removes previous instances every day, we recommend that you keep several recent backups on other media.



Restriction

Do not manually create files or directories in the NFS share used by Cisco Webex Meetings Server, as it runs various scripts on NFS files and directories. The NFS storage server must be for the exclusive use of Cisco Webex Meetings Server.

- Use your dashboard to monitor the health status of the NFS, CPU, and storage. We recommend enabling dashboard alarms for storage and CPU.
- If you plan to use directory integration, refer to the Configuring Directory Integration section in the "Managing Users" chapter of the *Cisco Webex Meetings Server Administration Guide* for more information.
- When using Cisco Webex Meetings Server, the related SIP trunk on CUCM in the CallManager service interface should have the **Media Termination Point Required** check box unchecked on the **Trunk Configuration** page. See [Configuring a SIP Trunk on a Load Balance Point](#) and [Configuring a SIP Trunk for an Application Point](#) for more details.
- If you are running Cisco Webex Meetings Server Release 2.0 or higher and using B-series blade servers, you are required to use SAN storage to fulfill the hard drive requirements. See [General System Requirements, on page 1](#) for more information about SAN requirements.

Webex Meetings Desktop Application

With the Cisco Webex Meetings Desktop Application, users can schedule, start, and join meetings without going to the Webex site. The latest version is available from Webex Administration, **Settings > Downloads**.

Users

The system supports a lifetime maximum of 400,000 user accounts. This number represents the total of both active and deactivated user accounts. This lifetime maximum number is large enough to accommodate expected growth in the user database.

Administrators cannot delete users from the system. Instead, users are deactivated. This design enables administrators to reactivate previously deactivated user accounts, even after long periods of user inactivity. The user's meetings and other content (including recordings) are restored.

Deployment Sizes For Your System

When determining the size for your system, consider how many users you expect to be using the system at any given time. For example, in a 50-user system the maximum number of users concurrently attending meetings is 50. If more than 50 users attempt to join a meeting, an error messages displays for all users who attempt to join a meeting after the maximum number of users is exceeded, and the system prevents these users from joining the meeting.

- [50-user System, on page 10](#)
- [250-user System, on page 12](#)
- [800-user System, on page 14](#)
- [2000-user System, on page 17](#)

Here are some things to consider when determining the size for you system:

- Determine the largest number of users you anticipate will join a meeting at any given time, including rare or unusual occasions.
- You can expand the system size to a larger size at any time as long as your hardware meets or exceeds the minimum requirements for the larger size system; otherwise, you must purchase additional hardware.
- If you plan to add High Availability (HA) or a Multi-data Center (MDC) to your system, include the additional virtual machines necessary to support the HA or MDC system, when you purchase your hardware.

Requirements for vCenter Co-residency

VMware vCenter Server or vCenter Server Appliance can reside with other virtual machines or with Cisco WebexLar Meetings Server (CWMS) virtual machines in some instances.

On a 50– or a 250–user system, VMware vCenter can reside on the same host with CWMS. However additional RAM must be installed with the Cisco UCS server. For the exact amount of RAM required, see the requirements for that system size in [Minimum Hardware Requirements](#).

Virtual Machines In Your System

These are the virtual machines created for your system. Some functions are combined into one virtual machine for the smaller system sizes.

- **Admin**—*Heart node* of the system. Includes the system database and provides administrative functions.
- **Media**—Provides media services (audio-video function, telephony and meetings services).
Included in the Admin virtual machine in a 50 concurrent users system.
- **Web**—Provides web services (meeting list and recordings). Enables the user to schedule future meetings.
Included in the Admin virtual machine in a 50, 250 or 800 concurrent users system.
End users sign in to the Webex web site. Administrators sign in to the Administration web site.
- **Internet Reverse Proxy (IRP)**—Provides public access, enabling users to host or attend meetings from the Internet and mobile devices. The Internet Reverse Proxy is required for your mobile workforce to attend meetings.



Note Only the IRP provided with this product may be used in this system. Internet Reverse Proxies or web load balancers, supplied by other vendors, are not supported. The IRP provided with this product is optimized for handling real-time web, audio, and data-sharing traffic from external users joining meetings from the Internet.



Note In this documentation, we use the term *internal virtual machines* to refer to the Admin virtual machine, and if applicable, to the Media and Web virtual machines.

The IRP is situated in the DMZ network (non-split-horizon and split-horizon network topologies) or in the internal network (all internal network topology).

- [Non-Split-Horizon Network Topology](#)
- [Split-Horizon Network Topology](#)
- [Internal Internet Reverse Proxy \(IRP\) Network Topology](#)

Minimum Hardware Requirements

This section lists some of the Cisco UCS servers you can use for each size system. For specific requirements for each system, see the following topics:

- [50-user System](#)
- [250-user System](#)
- [800-user System](#)
- [2000-user System](#)

Table 1: ESXi Versions and License Types

System Size	ESXi Version	vSphere License Type
50 or 250	5.5, 6.0, 6.5, and 6.7	Standard Edition, Enterprise Edition, Enterprise Plus Edition
800 or 2000	5.5, 6.0, 6.5, and 6.7	Standard Edition, Enterprise Edition, Enterprise Plus Edition

Table 2: Host Models

Deployment Size	Example of UCS Model
50 Users	<ul style="list-style-type: none"> • UCS C220 M3 • UCS B200 M3 • UCS C220 M4S • C240 M4S2
250 Users	<ul style="list-style-type: none"> • UCS C220 M3 • UCS B200 M3 • UCS C220 M4S • C240 M4S2
800 Users	<ul style="list-style-type: none"> • UCS C460 M2 • UCS B440 M2 • UCS B420 M3 (2.0 and higher)
2000 Users	<ul style="list-style-type: none"> • UCS C460 M2 • UCS B440 M2 • UCS B420 M3 (2.0 and higher)

Co-residency with vCenter is supported with 50- and 250-user system deployments only. Co-residency with Cisco Unified Communications products on the same physical host is not supported.

You can use older models of the UCS hardware with your system, but for a better user experience use the hardware listed in the table. For example, you can use the UCS C220 M3 for a 250-user system if you already have that hardware available.

When upgrading Cisco Webex Meetings Server, you can use Cisco UCS B200 M3 blade servers with 2x local hard drives, as long as the upgraded system uses SAN storage for its virtual machines. Using SAN storage with B-series blade servers allows your system to meet the 4 hard disk drives in a RAID 5 or RAID 10 configuration requirement for Cisco Webex Meetings Server.



Note For 800-user and 2000-user systems, we do not recommend deploying additional virtual machines on a DMZ host. This can result in increased packet loss and noticeable latency on media connections.

Resources Consumed by CWMS and the ESXi Host

Cisco Webex Meetings Server is deployed on one or more virtual machines on ESXi hosts. Both Cisco Webex Meetings Server (CWMS) and ESXi (VMware component that enables virtualization on the physical Cisco UCS Server) use CPU and memory resources, and storage space. Depending on your system size, vCenter and multiple virtual machines might run on the same Cisco UCS server.



Important Disable hyperthreading for all CWMS virtual machines. Some services and applications are not designed to work with multithreading capabilities. This incompatibility can cause issues, such as high CPU or memory usage. We do not include hyperthreading in the CPU calculations for any size CWMS system.

CWMS uses *resource reservation* for its virtual machines to guarantee system scalability. Other VMware workloads do not take CPU and other resources away from the virtual machines. The minimum requirements for each system size includes enough resources to support:

- Continued quality of service for CWMS at peak system usage (maximum capacity).
- VMware ESXi.
- VMware vCenter (when co-resident).

For the requirements for vCenter Server, see [Knowledge Base](#) and search for "Installing vCenter Server <version> best practices," where <version> is your vCenter Server version.

- VMware snapshots of the virtual machine (delete these as soon as possible otherwise you may experience severe performance degradation).

Extra disk space is required for snapshots, as some snapshots may be as large as the original virtual machine. In some cases, vSphere may delete snapshots to create storage space, compromising the ability to roll back to previous snapshots.

- Use of the Cisco UCS Server over the typical life cycle of the server.

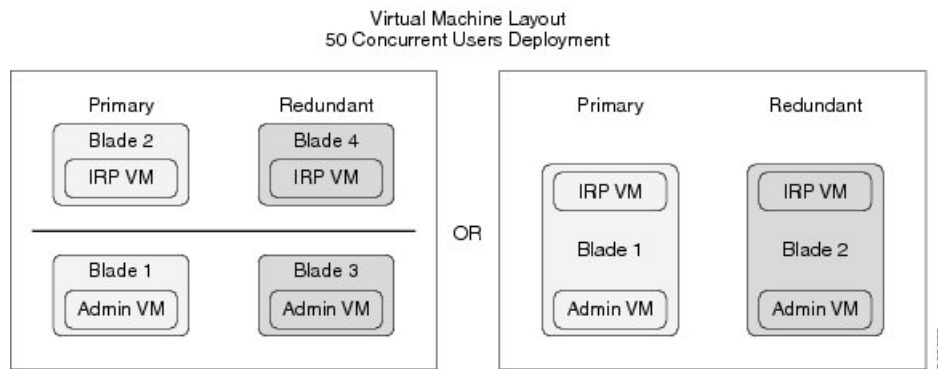
The hardware requirements specified in the OVA file are the minimum requirements to deploy Cisco Webex Meetings Server. These requirements *do not include* any CPU, memory, or storage requirements for VMware vCenter or ESXi.



Caution Co-residency, other than the configurations listed in the tables in this document, is not supported. If you disregard our system requirements, your virtual machines might not boot. The deployment of the virtual machines can stall from within the earliest product screens during the vCenter OVA deployment.

50-user System

A 50-user system is also called a *micro* system. (Multi-data Center (MDC) is not available for micro systems.) The diagram illustrates two versions of a 50-user deployment. (The "Redundant" virtual machines demonstrate support for High Availability (HA).)



The table lists the minimum hardware requirements for the ESXi hosts (Cisco UCS servers) in your system. The last two columns show the amount of free disk space needed for new installations of Cisco Webex Meetings Server, and for an Automatic Upgrade, using your existing Cisco UCS servers. For more information, see [General System Requirements](#).

For information about the bandwidth requirements, see the [Network Bandwidth Requirements](#).



Note For IOPS information, see [Advantages of Deploying a System on VMware vSphere](#).

Co-residency with vCenter is supported with a 50-user system deployment as configured in the following table.

Virtual Machines on ESXi Host (Cisco UCS Server)	CPU Cores	Memory (GB)	Ethernet Ports	Hard Drive Storage Requirement for New Installs
Admin	4	24	2 for the Admin virtual machine, including 1 if NIC teaming is used for redundancy 1 recommended for ESXi management network	2.5 TB; minimum of 7,200 RPM

Virtual Machines on ESXi Host (Cisco UCS Server)	CPU Cores	Memory (GB)	Ethernet Ports	Hard Drive Storage Requirement for New Installs
Admin and vCenter (co-resident)	6	36	2 for the Admin virtual machine, including 1 if NIC teaming is used for redundancy 1 for vCenter 1 recommended for ESXi management network	2.5 TB; minimum of 7,200 RPM
Internet Reverse Proxy (IRP)	6	12	2 for the IRP virtual machine, including 1 if NIC teaming is used for redundancy 1 recommended for ESXi management network	600 GB; minimum of 7,200 RPM
Admin and IRP (co-resident)	8	36	2 for the Admin virtual machine, including 1 if NIC teaming is used for redundancy 2 for IRP virtual machine, including 1 if NIC teaming is used for redundancy 1 recommended for ESXi management network	2.5 TB; minimum of 7,200 RPM
Admin and IRP and vCenter (all co-resident)	12	40	2 for the Admin virtual machine, including 1 if NIC teaming is used for redundancy 2 for IRP virtual machine, including 1 if NIC teaming is used for redundancy 1 for vCenter 1 recommended for ESXi management network	2.5 TB; minimum of 7,200 RPM



Note If you plan to use a High Availability (HA) system, double the hardware requirements and quantities of the primary system to support both systems.

Resources Reserved by the Virtual Machines in a 50-user System

This section describes how much media the virtual machines use and is intended for those with expert knowledge of VMware. CPU resources are specified as vCPUs (cores) and MHz (CPU cycles). The VMware VMkernel uses MHz cycles to control CPU scheduling.

Memory resources are specified by maximum memory and reserved memory. Reserved memory is not shared with other virtual machines on the same physical Cisco UCS Server.

Disk resources (storage) are controlled in two separate areas. During the OVA build, the CentOS file system partition sizes determine the minimum disk size. Secondly, vCenter controls the maximum disk space available.

If you attempt to deploy a virtual machine without the minimum number of vCPUs, the OVA deployment of the virtual machine will fail. If you attempt to deploy a virtual machine without the minimum total MHz processor speed, then the virtual machine will not power on.



Important The numbers in this table do not include resources for VMware ESXi.

Virtual Machine Type	Virtual CPU (vCPU)	CPU ² (MHz)	Reserved Memory/Total Memory ³ (GB)	Disks (GB)
Admin	4	8000	12/14	836
Internet Reverse Proxy	4	8000	4/4	276

² Number obtained by multiplying the number of physical CPUs with the speed of the CPU chip (MHz). Hyperthreading is not included in this calculation. (The physical CPU must have a clock speed of 2.4 GHz or faster.)

³ Virtual machines with media functionality have additional, non-reserved memory; Memory = Reserved/Total

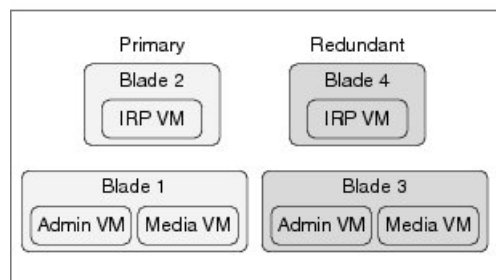
Related Topics

[Resources Consumed by CWMS and the ESXi Host](#), on page 9

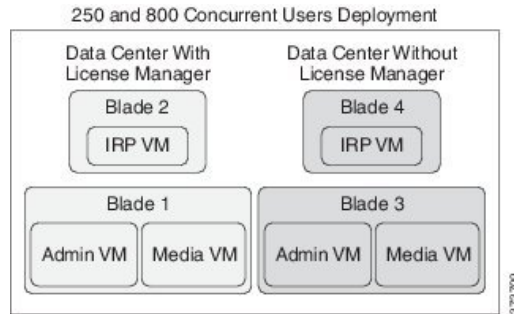
250-user System

A 250-user system is also called a *small* system. This diagram illustrates two versions of a 250-user deployment. The "Redundant" virtual machines demonstrate support for High Availability (HA). If your system does not include HA support, only deploy the **Primary** system.

Virtual Machine Layout
250 and 800 Concurrent Users Deployment



This diagram shows the layout of a 250-user system with two data centers that form a Multi-data Center (MDC) system with Internet Reverse Proxy (IRP) support.. The License Manager runs on only one data center.



The table lists the minimum hardware requirements for the ESXi hosts (Cisco UCS servers) in your system. The last two columns show the amount of free disk space needed for new installations of Cisco Webex Meetings Server, and for an Automatic Upgrade, using your existing Cisco UCS servers. For more information, see [General System Requirements](#).

For information about the bandwidth requirements, see [Network Bandwidth Requirements](#).

For IOPS information, see [Advantages of Deploying a System on VMware vSphere](#).

Co-residency with vCenter is supported with a 250 user system deployment as configured in the following table.

Virtual Machines on ESXi Host (Cisco UCS Server)	CPU Cores	Memory (GB)	Ethernet Ports	Hard Drive Storage Requirement for New Installs
Admin and Media	12	52	<ul style="list-style-type: none"> • 2 for Admin and Media, including 1 if NIC teaming is used for redundancy • 1 recommended for ESXi management network 	2.5 TB; minimum of 7200 RPM
(Admin and Media) and vCenter (co-resident)	16	56	<ul style="list-style-type: none"> • 2 for Admin and Media, including 1 if NIC teaming is used for redundancy • 1 recommended for ESXi management network • 1 for vCenter 	2.5 TB; minimum of 7200 RPM
Internet Reverse Proxy (IRP)	12	36	<ul style="list-style-type: none"> • 2 for IRP, including 1 if NIC teaming is used for redundancy • 1 recommended for ESXi management network 	600 GB; minimum of 7200 RPM



Note If you plan to use a HA system, purchase the same hardware and quantities for the HA system as you did for the primary system.

Resources Reserved by the Virtual Machines in a 250-user System

This section describes how much media the virtual machines use and is intended for those with expert knowledge of VMware. CPU resources are specified as vCPUs (cores) and MHz (CPU cycles). The VMware VMkernel uses MHz cycles to control CPU scheduling.

Memory resources are specified by maximum memory and reserved memory. Reserved memory is not shared with other virtual machines on the same physical Cisco UCS Server.

Disk resources (storage) are controlled in two separate areas. During the OVA build, the CentOS file system partition sizes determine the minimum disk size. Secondly, vCenter controls the maximum disk space available.

If you attempt to deploy a virtual machine without the minimum number of vCPUs, the OVA deployment of the virtual machine will fail. If you attempt to deploy a virtual machine without the minimum total MHz processor speed, then the virtual machine will not power on.



Important The numbers in this table do not include resources for VMware ESXi.

Virtual Machine Type	Virtual CPU (vCPU)	CPU ⁴ (MHz)	Reserved Memory/Total Memory ⁵ (GB)	Disks (GB)
Admin	4	8000	16/16	876
Media	8	16,480	13/23	276
Internet Reverse Proxy	8	16,480	6/6	276

⁴ Number obtained by multiplying the number of physical CPUs with the speed of the CPU chip (MHz). Hyperthreading is not included in this calculation. (The physical CPU must have a clock speed of 2.4 GHz or faster.)

⁵ Virtual machines with media functionality have additional, non-reserved memory; Memory = Reserved/Total

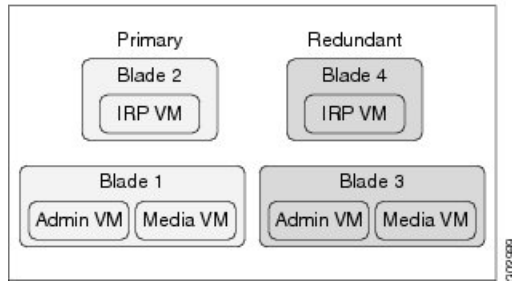
Related Topics

[Resources Consumed by CWMS and the ESXi Host](#), on page 9

800-user System

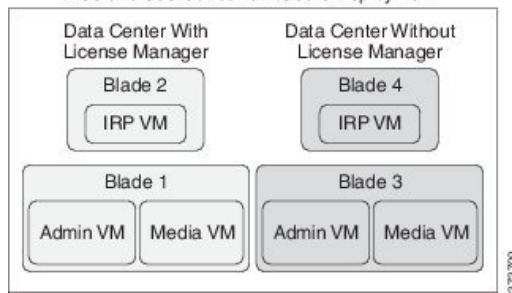
An 800-user system is also called a *medium* system. This diagram illustrates two versions of an 800-user deployment. The "Redundant" virtual machines demonstrate support for High Availability (HA).

Virtual Machine Layout
250 and 800 Concurrent Users Deployment



This diagram shows the layout of an 800-user system with two data centers that form a Multi-data Center (MDC) system with Internet Reverse Proxy (IRP) support. The License Manager runs on only one data center.

250 and 800 Concurrent Users Deployment



The table lists the minimum hardware requirements for the ESXi hosts (Cisco UCS servers) in your system. The last two columns show the amount of free disk space needed for new installations of Cisco Webex Meetings Server, and for an Automatic Upgrade, using your existing Cisco UCS servers. For more information, see [General System Requirements](#).

For more information about the bandwidth requirements, see [Bandwidth on Cisco Webex Meetings Server Network Interfaces](#).

For information about the bandwidth requirements, see the [Network Bandwidth Requirements](#).



Note Co-residency with vCenter is not supported with an 800-user system deployment.

For IOPS information, see [Advantages of Deploying a System on VMware vSphere](#).

Virtual Machines on ESXi Host (Cisco UCS Server)	CPU Cores	Memory (GB)	Ethernet Ports	Hard Drive Storage Requirement for New Installs
Admin and Media (combined)	40	80	<ul style="list-style-type: none"> • 2 for Admin and Media, including 1 if NIC teaming is used for redundancy • 1 recommended for ESXi management network 	2.5 TB; minimum of 10,000 RPM

Virtual Machines on ESXi Host (Cisco UCS Server)	CPU Cores	Memory (GB)	Ethernet Ports	Hard Drive Storage Requirement for New Installs	Free Space Available
Internet Reverse Proxy (IRP)	20	18	<ul style="list-style-type: none"> • 2 for IRP, including 1 if NIC teaming is used for redundancy • 1 recommended for ESXi management network 	600 GB; minimum of 10,000 RPM	300 GB



Note If you plan to use an HA system, purchase the same hardware requirements and quantities as the primary system.

For 800 user systems, we do not recommend deploying additional virtual machines on a DMZ host. This might result in increased packet loss and noticeable latency on media connections.

Resources Reserved by the Virtual Machines in an 800-user System

This section illustrates how much media the virtual machines use and is intended for those with expert knowledge of VMware. CPU resources are specified as vCPUs (cores) and MHz (CPU cycles). The VMware VMkernel uses MHz cycles to control CPU scheduling.

Memory resources are specified by maximum memory and reserved memory. Reserved memory is not shared with other virtual machines on the same physical Cisco UCS Server.

Disk resources (storage) are controlled in two separate areas. During the OVA build, the CentOS filesystem partition sizes determine the minimum disk size. Secondly, vCenter controls the maximum disk space available.

If you attempt to deploy a virtual machine without the minimum number of vCPUs, the OVA deployment of the virtual machine will fail. If you attempt to deploy a virtual machine without the minimum total MHz processor speed, then the virtual machine will not power on.



Important The numbers in this table do not include resources for VMware ESXi.

Virtual Machine Type	Virtual CPU (vCPU)	CPU ⁶ (MHz)	Reserved Memory/Total Memory ⁷ (GB)	Disks (GB)
Admin	10	20,600	16/16	876
Media	30	60,800	14/44	276
Internet Reverse Proxy	20	41,200	10/10	276

⁶ Number obtained by multiplying the number of physical CPUs with the speed of the CPU chip (MHz). Hyperthreading is not included in this calculation. (The physical CPU must have a clock speed of 2.4 GHz or faster.)

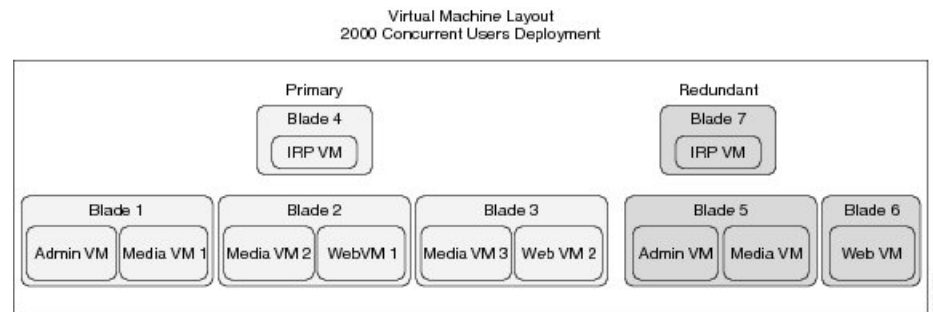
- ⁷ Virtual machines with media functionality have additional, non-reserved memory; Memory = Reserved/Total

Related Topics

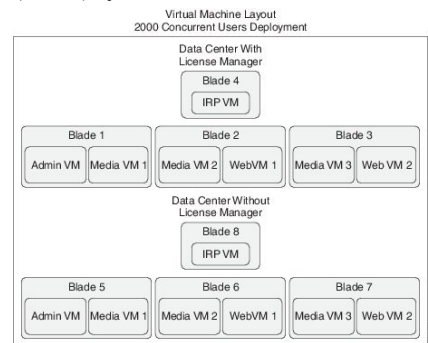
[Resources Consumed by CWMS and the ESXi Host](#), on page 9

2000-user System

A 2000-user system is also described as a *large* system. This diagram shows a 2000-user system with High Availability (HA) and Internet Reverse Proxy (IRP) support. The HA virtual machines are shown as the **Redundant** virtual machines. If your system does not include HA support, only deploy the **Primary** system.



This diagram shows a 2000-user system deployment with two data centers that form a Multi-data Center (MDC) system with Internet Reverse Proxy (IRP) support. The License Manager runs on only one data center.



Important

We recommend that you deploy the all virtual machines shown in the diagram. By deploying different types of virtual machines on a physical server, you can better avoid a system shutdown in the event of a hardware failure. For example, placing a Media and a Web virtual machines on a single physical server is more resilient than if you place both Web virtual machines on the same physical server.

On a large system there is an exclusion from the equal load balance rule (see [Load Balancing](#) for more information), where there are SIP trunk load balancers on Media 1 and Media 2, and where Media 3 and optionally Media HA do not have load balancing. If there is a failure of both Media 1 and 2 on the primary system, all telephony service on CWMS is lost. If the system is a HA deployment, the redundancy mitigates the failure of a single virtual machine.

The table lists the minimum hardware requirements for the ESXi hosts (Cisco UCS servers) in your system. The last two columns show the amount of free disk space needed for new installations of Cisco Webex

Meetings Server, and for an Automatic Upgrade, using your existing Cisco UCS servers. For more information, see [General System Requirements](#).

For more information about the bandwidth requirements, see [Network Bandwidth Requirements](#).

If you plan to add a HA system, those virtual machines are shown as the "redundant" virtual machines. If you do not want HA, deploy only the primary system.



Note Co-residency with vCenter is not supported with a 2000-user system deployment.



Note For IOPS information, see [Advantages of Deploying a System on VMware vSphere](#).

Virtual Machines on ESXi Host (Cisco UCS Server)	CPU Cores	Memory (GB)	Ethernet Ports	Hard Drive Storage Requirement for New Installs
Media1 and Admin (combined)	40	80	<ul style="list-style-type: none"> • 2 for Media1 and Admin, including 1 if NIC teaming is used for redundancy • 1 recommended for ESXi management network 	3 TB; minimum of 10,000 RPM
Media2 and Web1 (combined)	40	80	<ul style="list-style-type: none"> • 2 for Media2 and Web1, including 1 if NIC teaming is used for redundancy • 1 recommended for ESXi management network 	1.5 TB; minimum of 10,000 RPM
Media3 and Web2 (combined)	40	80	<ul style="list-style-type: none"> • 2 for Media3 and Web2, including 1 if NIC teaming is used for redundancy • 1 recommended for ESXi management network 	1.5 TB; minimum of 10,000 RPM

Virtual Machines on ESXi Host (Cisco UCS Server)	CPU Cores	Memory (GB)	Ethernet Ports	Hard Drive Storage Requirement for New Installs
Internet Reverse Proxy (IRP)	20	18	<ul style="list-style-type: none"> • 2 for IRP, including 1 if NIC teaming is used for redundancy • 1 recommended for ESXi management network 	600 GB; minimum of 10,000 RPM
Media and Admin (combined) for HA	40	80	<ul style="list-style-type: none"> • 2 for Media and Admin, including 1 if NIC teaming is used for redundancy • 1 recommended for ESXi management network 	3 TB; minimum of 10,000 RPM
Web for HA	20	40	<ul style="list-style-type: none"> • 2 for Web, including 1 if NIC teaming is used for redundancy • 1 recommended for ESXi management network 	1.5 TB; minimum of 10,000 RPM
IRP for HA	20	18	<ul style="list-style-type: none"> • 2 for IRP, including 1 if NIC teaming is used for redundancy • 1 recommended for ESXi management network 	600 GB; minimum of 10,000 RPM

Table 3: Requirements for Extended Capacity Systems

Virtual Machines on ESXi Host (Cisco UCS Server)	CPU Cores	Memory (GB)	Ethernet Ports	Hard Drive Storage Requirement for New Installs
IRP1 and IRP3 (combined) IRP2 and IRP4 (combined)	40	36	<ul style="list-style-type: none"> • 2 for IRP, including 1 if NIC teaming is used for redundancy • 1 recommended for ESXi management network 	1.5 TB; minimum of 10,000 RPM

Virtual Machines on ESXi Host (Cisco UCS Server)	CPU Cores	Memory (GB)	Ethernet Ports	Hard Drive Storage Requirement for New Installs
Media 4 and Web3 (combined) Media 5 and Web4 (combined) Media 6 and Web5 (combined)	40	80	<ul style="list-style-type: none"> • 2 for Web, including 1 if NIC teaming is used for redundancy • 1 recommended for ESXi management network 	1.5 TB; minimum of 10,000 RPM



Note For 2000 user systems, we do not recommend deploying additional virtual machines on a DMZ host. This might result in increased packet loss and noticeable latency on media connections.

Resources Reserved by the Virtual Machines in a 2000-user System

This section illustrates how much media the virtual machines use and is intended for those with expert knowledge of VMware. CPU resources are specified as vCPUs (cores) and MHz (CPU cycles). The VMware VMkernel uses MHz cycles to control CPU scheduling.

Memory resources are specified by maximum memory and reserved memory. Reserved memory is not shared with other virtual machines on the same physical Cisco UCS Server.

Disk resources (storage) are controlled in two separate areas. During the OVA build, the CentOS file system partition sizes determine the minimum disk size. Secondly, vCenter controls the maximum disk space available.

If you attempt to deploy a virtual machine without the minimum number of vCPUs, the OVA deployment of the virtual machine will fail. If you attempt to deploy a virtual machine without the minimum total MHz processor speed, then the virtual machine will not power on.

The numbers in the following table apply to Extended Capacity systems.



Important The numbers in this table do not include resources for VMware ESXi.

Virtual Machine Type	Virtual CPU (vCPU)	CPU ⁸ (MHz)	Reserved Memory/Total Memory ⁹ (GB)	Disks (GB)
Admin	10	20,600	16/16	1134
Media	30	60,800	14/44	276
Web	10	20,600	16/16	276
Internet Reverse Proxy	20	41,200	10/10	276

⁸ Number obtained by multiplying the number of physical CPUs with the speed of the CPU chip (MHz). Hyperthreading is not included in this calculation. (The physical CPU must have a clock speed of 2.4 GHz or faster.)

⁹ Virtual machines with media functionality have additional, non-reserved memory; Memory = Reserved/Total

Related Topics

[Resources Consumed by CWMS and the ESXi Host](#), on page 9

System Capacity Matrix

Key Points:

- One of the basic assumptions for the information presented in this section is that there are at least two people participating in a meeting.
- Concurrent meeting connections is defined as the number of people participating in a meeting at any given time. For example, for a 50 user system, the maximum concurrent meeting connections can be comprised of five concurrent meetings that each have a total of 10 people in the meeting (for example, one host and nine participants).
- After the maximum number of meeting participants is reached for any point in time, the system does not allow other users to start or join meetings. Of those maximum number of meeting participants (2000, 800, 250 or 50 people), only half of the participants can use video. Video is defined as sending or receiving, meaning users might be using their Webex webcam video or the video file share option which allows users to share a video.
- Desktop sharing is not considered video. This means with a 250 user system, 250 people can be sharing their desktops during meetings at any given time.
- The addition of High Availability or Multi-data Center does not increase the capacity of the system to hold meetings; an 800-user system is still an 800-user system.

The numbers in the table below represent the design capacity for the Cisco Webex Meetings Server system. Operating the system at a capacity higher than these specifications can result in a degraded user experience and may result in system instability. Cisco reserves the right to enforce capacity limits at these levels.



Note These values in the following table remain the same regardless of whether your system is a single data center or a multi-data center system.

Table 4: System Capacity Matrix

System Capacity	4000 user system	2000 user system	800 user system	250 user system	50 user system	Notes
Maximum Concurrent Meeting Connections (Audio, Video, and Web users)	4000	2000	800	250	50	The number of people participating in concurrent meetings at any given time.

System Capacity	4000 user system	2000 user system	800 user system	250 user system	50 user system	Notes
Maximum Simultaneous Audio Connections (Teleconference Phone Calls and Voice Connection Using Computer From Meeting Clients)	4000	2000	800	250	50	The system capacity remains the same as shown on the left, regardless of what combination of the following features are used: <ul style="list-style-type: none"> • G.711, G.722, G.729 audio codecs • IPv4 or IPv6 teleconferencing • TLS/SRTP audio encryption
Maximum Concurrent Video and Video File Sharing Users	2000 (180p, 360p) / 1000 (720p in 4.0)	1000 10	400	125	25	These numbers show the maximum number of concurrent meeting connections (or participants) allowed to use video sharing at the same time. When the number of users with video sharing in concurrent meetings reaches this limit, then the remaining users invited to the concurrent meetings can join the meetings, but their video windows are dimmed. <p>Note If one participant in a meeting uses video, then all other users in the same meeting are counted as video users, even if they are not using video themselves.</p> <p>Note Desktop sharing is not considered video.</p>
Maximum Participants in One Meeting	500	500	500	250	50	These numbers show the maximum number of participants who can attend a meeting.
Maximum Meetings That Can be Recorded Simultaneously	200	100	40	13	3	This is the total number of meetings that can use the Recording feature at one time.

System Capacity	4000 user system	2000 user system	800 user system	250 user system	50 user system	Notes
Maximum Concurrent Recording Playback Sessions	1000	500	200	63	12	This is the total number of recording playback sessions that can occur simultaneously. This refers to recordings that are saved on your storage system and does not include recordings that are downloaded to users' desktops. Note These playback sessions are not included in the concurrent meeting connections on the system.
Maximum Number of User Profiles	400,000	400,000	400,000	400,000	400,000	This number includes active and deactivated users.
Maximum Concurrent Meetings	2000	1000	400	125	25	The number of separate meetings that can be active concurrently.
Maximum Call Rate (calls/per second)	40	20	8	3	1	This is the average number of users who can dial into a meeting during a one second time period. After the system reaches this number, the next few users to dial into the meeting might experience an additional few seconds wait before connecting to the meeting.
Maximum Concurrent Sign-in	40 people per second	20 people per second	8 people per second	3 people per second	1 person per second	This is the average number of users who can simultaneously sign in to your Webex site during a one second time period. After the system reaches this number, the next few users to sign in to the Webex site might experience an additional few seconds wait before they can join a meeting.
Maximum Aggregate Bandwidth Utilization	10 Gbps	5 Gbps	2 Gbps	625 Mbps	125 Mbps	Using our test system at its maximum bandwidth, this is the maximum bandwidth the test system could handle. For more information about bandwidth utilization see the Network Bandwidth Requirements section in the <i>Networking Topology for Your System</i> chapter of the Planning Guide . You can also refer to the Webex Network Bandwidth White Paper .

¹⁰ 800 in Federal Information Processing Standards (FIPS environments)



Tip The maximum length of a meeting is 24 hours for all size user system deployments.



Note When considering an upgrade, plan for the increased size of the data stores, as the original system and the upgraded system share data stores until testing of the upgraded system is complete and the original system is removed.

For information about network bandwidth requirements for the various size user systems, see the "Network Bandwidth Requirements" section in the Network Topology For Your System chapter in this book.

Supported Upgrade Paths

This release of Cisco Webex Meetings Server supports upgrades from release 1.5 to 3.0. The following points apply:

- An upgrade is a replacement of the system to deploy major modifications that we made to the system.
- An update is an incremental modification of the system. Updates deploy fixes and minor improvements.
- An update retains all data from the original system. An upgrade retains all data from the original system, except for the logs.
- You can't change the audio encryption type (Audio Encrypted -AE/Audio Unencrypted -AU) for the system, during an upgrade or during an update. After deployment, the only way to change a system from one type of audio encryption to the other is to deploy a new system.
- When upgrading, you can't skip a major version of the software and go directly to a companion maintenance release (MR). For more information, see the following table.

Use the following table to determine your upgrade path to Cisco Webex Meetings Server Release 4.0.

Installed Release	Path to Release 4.0 ¹¹
2.8 ¹²	<ol style="list-style-type: none"> 1. Update to the latest available 2.8MR3 patch. 2. Install Webex Productivity Tools, or push it to the desktops. 3. Upgrade to 4.0 FCS. 4. Update to the latest available 4.0MR release and patch. 5. Uninstall Webex Productivity Tools. 6. Install the Webex Meetings desktop app, or push it to the desktops.

Installed Release	Path to Release 4.0 ¹¹
3.0 ¹³	<ol style="list-style-type: none"> 1. Update to the latest available 4.0MR and patch. 2. Uninstall Webex Productivity Tools. 3. Install the Webex Meetings desktop app, or push it to the desktops. <p>Important You can't start instant meeting from Webex Productivity Tools versions earlier than 2.82.7000.1229.</p>
4.0	<ol style="list-style-type: none"> 1. Update to the latest available 4.0MR and patch. 2. Update Webex Meetings Desktop app if required.

¹¹ The Webex Meetings desktop app replaced Webex Productivity Tools for Cisco Webex Meetings Server 4.0. If you require Productivity Tools as part of your upgrade strategy, only version 2.82.7000.1229 or later is compatible.

¹² If your system is running an earlier version, see the *Release Notes for Cisco Webex Meetings Server Release 2.8*.

¹³ The Webex Productivity Tools version must be 2.82.7000.1229 or later, to start the 4.0 and later meeting clients. Upgrade Productivity Tools, before you update Cisco Webex Meetings Server to 4.0MR2.



Note All updates require downtime. For Multi-data centers, you update both data centers simultaneously.



Caution Don't click **Restart** for one data center until the update for the other is complete, and both display the **Restart** button.
